

ERS ELECTRONIC GMBH, 82110 GERMERING

Method and device for conditioning semiconductor wafers  
and/or hybrids

PATENT CLAIMS

1. Method for conditioning semiconductor wafers and/or hybrids having the steps:

preparation of a space (1) which is at least partially enclosed and has a wafer/hybrid holding device (10) which is located therein and has the purpose of holding a semiconductor wafer and/or hybrid; and

conduction of a dry fluid through the wafer/hybrid holding device (10) in order to heat-treat the wafer/hybrid holding device (10);

wherein at least a portion of the fluid leaving the wafer/hybrid holding device (10) is used to condition the atmosphere within the space (1).

2. Method according to Claim 1, characterized in that the space (1) is essentially enclosed by a container (5).

3. Method according to Claim 1 or 2, characterized in that the portion is firstly heat-treated and then allowed to flow out within the space (1).

4. Method according to Claim 1, 2 or 3, characterized in that the portion is heat-treated outside the space (1) and then fed back to the space (1).

5. Method according to Claim 1, characterized in that the portion is allowed to flow out within the space (1)

directly after it leaves the wafer/hybrid holding device (10).

6. Method according to Claim 1, characterized in that a first portion of the fluid leaving the sample stage (10) is firstly heat-treated and then allowed to flow out within the space (1), and a second portion is allowed to flow out within the space (1) directly after it leaves the wafer/hybrid holding device (10).

7. Method according to Claim 1, characterized in that at least one of the first and second portions can be regulated as a function of the flow rate.

8. Method according to Claim 3, characterized in that the portion is heat-treated in that it is used for precooling, in particular for precooling the fluid, outside the space (1) before said portion is allowed to flow out within the space (1).

9. Device for conditioning semiconductor wafers and/or hybrids having:

an at least partially enclosed space (1) having a wafer/hybrid holding device (10) which is located therein and has the purpose of holding a semiconductor wafer and/or hybrid; and

a line device (r2, r3, r4, r5, i3, i4) for conducting a dry fluid through the wafer/hybrid holding device (10) for heat-treating the wafer/hybrid holding device (10) and for conducting at least a portion of the fluid leaving the wafer/hybrid holding device (10) into the space (1) for conditioning the atmosphere in the space (1).

10. Device according to Claim 9, characterized in that the line device (r2, r3, r4, r5, i3, i4) has:

a first line (r2) via which the fluid can be conducted into the wafer/hybrid holding device (10) from outside the space (1);

a second line (r3) via which the fluid can be conducted from the wafer/hybrid holding device (10) to outside the space (1); and

a third line (r4) via which the fluid can be fed back from outside the space (1) into the space (1);

wherein a temperature regulating device (70; 70, 80'') is provided between the second and third lines (r3, r4).

11. Device according to Claim 10, characterized in that outflow elements (40) are provided at the end of the third line (r4).

12. Device according to Claim 9, characterized in that the line device (r2, r3, r4, r5, i3, i4) has:

a first line (r2) via which the fluid can be conducted from outside the space (1) into the wafer/hybrid holding device (10); and

a fourth line (r5) via which the fluid can be conducted from the wafer/hybrid holding device (10) into the space (1).

13. Device according to Claim 12, characterized in that the line device (r2, r3, r4, r5, i3, i4) has:

a second line (r3) via which the fluid can be conducted out of the wafer/hybrid holding device (10) to outside the space (1); and

a third line (r4) via which the fluid can be fed back into the space (1) from outside the space (1);

wherein a temperature regulating device (70; 70, 80'') is provided between the second and third lines (r3, r4).

14. Device according to one of Claims 12 or 13, characterized in that a valve (45) is provided for regulating the flow rate of the fourth line (r5).

15. Device according to one of Claims 10 to 14, characterized in that the temperature regulating device (70; 70, 80'') has a heating device (105).

16. Device according to one of Claims 10 to 15, characterized in that the temperature regulating device (70; 70, 80'') has a heat exchanger (95) to which at least a portion of the fluid leaving the space (1) can be conducted.

17. Device according to Claim 16, characterized in that the heat exchanger (95) is used to precool the fed-in fluid.

18. Device according to Claim 13, characterized in that the line device (r2, r3, r4, r5, i3, i4) is designed in such a way that the portion leaving the heat exchanger (95) can be fed back at least partially into the space in order to condition the atmosphere.

19. Device according to one of Claims 9 to 18, characterized in that a further line (r1) is provided via which dry fluid can additionally be conducted directly into the space (1) from outside the space (1).

20. Device according to one of Claims 9 to 19, characterized in that the space (1) is essentially

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enclosed by a container (5).